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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/656,325	09/06/2000	Steven D. Nelson	14073US01	9079

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PERKINS COIE LLP
PATENT-SEA
P.O. BOX 1247
SEATTLE, WA 98111-1247

EXAMINER	
CHAMBERS, TROY	
ART UNIT	**PAPER NUMBER**
3641	

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	02/27/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary	Application No.	Applicant(s)	
	09/656,325	NELSON ET AL.	
	Examiner	Art Unit	
	Troy Chambers	3641	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *66,67 and 88-106* is/are pending in the application.

4a) Of the above claim(s) *88 and 89* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *66 and 90-106* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *30 October 2006* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. The request for continued examination filed 10/30/2006 is acknowledged. The amendments to the claims, drawings and specification have been accepted and entered.

2. Applicant's reply to the Request for Information mailed 11/13/2006 is acknowledged and accepted as being complete but unpersuasive in terms of overcoming prior art and 112 rejections.

Correction of Inventorship

3. The examiner declines to acknowledge the applicant's request for inventorship filed April 19, 2001. A request made under 37 C.F.R. 1.48 requires, inter alia, the written consent of an assignee, if an assignment has been executed by any of the original named inventors. An assignment recorded on 06/09/2005 and mailed 07/28/2005 shows an attempted assignment from assignor John J. Walsh to assignee Special Devices. However, John J. Walsh has never been listed as an inventor nor an assignee/assignor of record. At this time, it is unclear whether Special Devices is a legitimate assignee of record.

Election/Restrictions

4. Claims 88 and 89 are withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to a nonelected species, there being no allowable generic or linking claim. Applicant timely traversed the restriction (election) requirement in the reply filed on 03/27/06.

5. Applicant's election of claims 88 and 89 in the reply filed on 03/27/06 is acknowledged. Because applicant did not distinctly and specifically point out the supposed errors in the restriction requirement, the election has been treated as an election without traverse (MPEP § 818.03(a)).

Specification

The specification is objected to under 37 CFR § 1.71(a). The specification must include:

> a written description of the invention or discovery and of the manner and process of making and using the same, and is required to be in such full, clear, concise, and exact terms as to enable any person skilled in the art or science to which the invention or discovery appertains, or with which it is most nearly connected, to make and use the same.

The specification fails to enable one having ordinary skill in the art to make or use the disclosed invention because it does not make clear the two conditions known as the analog condition and the firing condition. At one point, the specification defines the analog condition as "the voltage level on the cable network 204, modulation depth, or frequency." (Pg. 19, ll. 7-10). However, another portion of the specification equates the analog condition with the firing command. (Pg. 20, ll. 10-11). Moreover, there does not appear to be a disclosure that describes the firing condition. The specification does not disclose the nature of the bus system when it is in the analog condition or how it differs when it is in the firing condition. Furthermore, the specification does not appear to

disclose how or in what manner the bus is capable of changing the system from one condition to the other.

Claim Rejections - 35 USC § 112

6. The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

7. Claims 66, 67 and 90-100 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter that was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. As discussed above in the objection to the specification, it is not clearly disclosed what applicant defines as the analog condition of the network and the firing condition of the network and what takes place when one is changed to another. The analog condition seems to be defined by several functions (voltage, modulation depth, frequency, firing signal) while the features of the firing condition are not disclosed at all. If the analog condition is as described in the specification then, if it is altered, it is no longer the analog condition. What is the condition of the bus when it is in the analog condition? What is the condition of the bus when it is in the firing condition? If the altering of the bus from an analog condition to a firing condition is considered novel, how or in what manner is the bus capable of performing this function?

Claim Rejections - 35 USC § 102/103

8. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

10. In view of the objections/rejections above, if Boucher does not disclose a logic device as claimed by the applicant in claims 66, 67 and 90, the claims would be obvious over US 5460093 issued to Prinz in view of Boucher. Prinz discloses a programmable initiator 10 including a capacitor 28/32, logic circuit 30 and bridge initiator 18 and a controller 14. Referring to column 10, lines 23-54, when the logic circuit receives an 1) ARM command, 2) power is applied to leads L1 and L2 to charge the firing capacitor 32 (analog condition to firing condition). Thereafter, a FIRE command is sent to logic circuitry 30. The fire command cannot be carried out if a voltage sensor 66 does not detect the proper voltage across capacitor 32. Boucher discloses an electronic ordnance system as discussed above including the requirement that all digital signals sent to and from the bus controller and initiators are coded. At the time of the

invention, one having ordinary skill in the art would have found it obvious to provide the controller 14 and initiator device of Prinz with the ordnance system of Boucher. The suggestion/motivation for doing so would have been to provide for increased security and safety when using the device, such security and safety features enhanced by the digital coded features of Boucher.

11. Claims 66, 67, are rejected under 35 U.S.C. 103(a) as being unpatentable over the embodiment of Fig. 5 of US 6584907 issued to Boucher in view of the embodiment of Fig. 1A and in further view of US 4860653 issued to Abouv. The embodiment of Fig. 5 discloses a networked electronic ordnance system, comprising:

a. initiator devices 16c;

b. bus controller 12;

c. party line bus 14;

d. energy storage capacitor 26.

Signals to arm or fire are received via the party line bus. First, an arm signal is transmitted (col. 15, ll. 67 to col. 16, ll. 1). An arm signal results in the charging of a storage capacitor (col. 16, ll. 5-7). After the storage capacitor is charged, a firing signal may be issued (col. 15, ll. 15 to ll. 24). Transferring power over bus 14 to charge the capacitor is equivalent to "altering an analog condition of a network".

In the embodiment of Fig. 5, unique identifiers are not disclosed as being used. However, the embodiment of Fig. 1A discloses such a feature. Specifically, Fig. 1A discloses initiator devices that are programmed to respond "those signals that contain an address code identified with that initiator." (Col. 9, ll. 49-59). At the time of the

invention, one having ordinary skill in the art would have found it obvious to provide the embodiment of Fig. 5 with the unique address features of Fig. 1A. The suggestion/motivation for doing so would have been to provide for the ability to address specific initiators and increase safety.

The signals sent by Boucher do not appear to be digital.

Abouv discloses detonator assemblies 6 having a microcomputer with a memory that stores an arm code and an actuate code (col. 2, ll. 17-29). The Abouv discloses that said codes are preferably digital. The detonator assembly 6 includes an actuator unit that includes circuit board 192 and a circuit 206 in the form of a microcomputer. The microcomputer is capable of receiving a "BLAST" command and a "BOOM" command from a controller 14 (col. 9, ll. 60 to col. 10, ll. 1). At the time of the invention, one having ordinary skill in the art would have found it obvious to provide ordnance system of Boucher with the digital signal sending and receiving capabilities of Abouv. The suggestion/motivation for doing so would have been to avoid accidental and unauthorized firing.

12. Claims 90, 101, 102 and 103 are rejected under 35 U.S.C. 103(a) as being unpatentable over Boucher and Abouv, and further in view of US 5894103 issued to Shann. Boucher and Abouv disclose a combined network ordnance system as discussed above. However, neither appear to disclose the digital disarming command that results in a discharging stored activation energy. Shann discloses an abort command that can be issued to discharge energy stored in a capacitor when it is no longer desired to fire an ordnance device (col. 4, ll. 50-59).

13. Claims 91, 92, 94 and 95 are rejected under 35 U.S.C. 103(a) as being unpatentable over Boucher and Abouv, and further in view of applicant's admission. Boucher and Abouv disclose a combined network ordnance system as discussed above. However, neither appears to disclose the bus interface. Applicant's specification (pg. 7, ll. 10-14) describes a bus interface and provides that such an interface is well known to those skilled in the art. The examiner accepts this admission and further provides that it would have been obvious to provide the combined device of Boucher and Abouv with such a well-known electronic component. The suggestion/motivation for doing so would have been to have signals intercepted and evaluated before being passed on to the electrical components stored within the pyrotechnic initiator.

14. Claims 93 and 97 are rejected under 35 U.S.C. 103(a) as being unpatentable over Boucher, Abouv and applicant's admission as applied to claim 91 above, and further in view of Shann. Neither of the combined references disclose a disarm command. Shann discloses an abort command that can be issued to discharge energy stored in a capacitor when it is no longer desired to fire an ordnance device (col. 4, ll. 50-59).

15. Claim 96 rejected under 35 U.S.C. 103(a) as being unpatentable over Boucher, Abouv, applicant's admission and Shann and in further view of US 4674047 issued to Tyler. Boucher, Abouv, applicant's admission and Shann disclose a networked electronic ordnance device as described above. However, neither appears to disclose the disarmed status transmitted by the pyrotechnic device. Tyler discloses a computer

controlled electronic ordnance system in which status checks such as arming, power storage, disarming, or power-down etc., are performed (col. 8, ll. 23-33). At the time of the invention, one having ordinary skill in the art would have found it obvious to provide the combined pyrotechnic device of Boucher, Abouv, applicant's admission and Shann with the status identification features of Tyler. The suggestion/motivation for doing so would have been to allow an operator to have interaction between the main firing console and the various pyrotechnic initiators.

16. Claims 98, 99 and 100 are rejected under 35 U.S.C. 103(a) as being unpatentable over Boucher, Abouv and applicant's admission and in further view of US 4674047 issued to Tyler. Boucher, Abouv and applicant's admission disclose a networked electronic ordnance device as described above. However, neither appears to disclose the disarmed status transmitted by the pyrotechnic device. Tyler discloses a computer controlled electronic ordnance system in which status checks such as arming, power storage, disarming, or power-down etc., are performed (col. 8, ll. 23-33). At the time of the invention, one having ordinary skill in the art would have found it obvious to provide the combined pyrotechnic device of Boucher, Abouv and applicant's admission with the status identification features of Tyler. The suggestion/motivation for doing so would have been to allow an operator to have interaction between the main firing console and the various pyrotechnic initiators.

17. Claims 104-106 are rejected under 35 U.S.C. 103(a) as being unpatentable over Boucher and Abouv and Shann and in further view of US 4674047 issued to Tyler. Boucher, Abouv and applicant's admission disclose a networked electronic ordnance

device as described above. However, neither appears to disclose the disarmed status transmitted by the pyrotechnic device. Tyler discloses a computer controlled electronic ordnance system in which status checks such as arming, power storage, disarming, or power-down etc., are performed (col. 8, ll. 23-33). At the time of the invention, one having ordinary skill in the art would have found it obvious to provide the combined pyrotechnic device of Boucher, Abouv and applicant's admission with the status identification features of Tyler. The suggestion/motivation for doing so would have been to allow an operator to have interaction between the main firing console and the various pyrotechnic initiators.

Response to Arguments

18. Applicant's arguments with respect to prior art applied to claims 6, 67 and 90 have been considered but are moot in view of the new ground(s) of rejection.

19. Applicant's arguments describing the "firing condition" in relation to the "analog condition" are not persuasive. The analog condition has been expressly described. The claims require that the analog condition be altered. If the analog condition is altered to the firing condition then it is no longer the analog condition. If this is the case then the firing condition should be expressly defined as the analog condition. The applicant should consider requiring the altering of an analog condition without the firing condition limitation.

Conclusion

20. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Troy Chambers whose telephone number is (571) 272-

6874 between the hours of 7:00 a.m. to 3:30 p.m., M-F. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael J. Carone, can be reached at (571) 272-6873.

Troy Chambers
Primary Examiner
Art Unit 3641

TC
01/24/2007